Reporting Limits for Sediment Chemistry

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Background

- **Since 1989 guidance, terminology, conventions and technology have changed**
- **Our goal is to use high quality data for decision making:**
  - **evaluation of disposal options**
  - **contaminants of concern**
  - **bioassays**

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EPA United States Environmental Protection Agency New England

Background

- **Focus on Quantitation Limits**
  - **analytical standards are run at these levels**
- **Set at levels above the MDL, but below available background or reference conditions**
- **Technically feasible – the majority of laboratories conducting dredging work can meet these limits**

Reporting Limit Definition

- **Definition is in the RIM, chapter 5: “Minimum concentration of an analyte that can be identified and quantified above MDL (usually 3 to 5 times). It is based on the lowest standard in the calibration curve.”**

Reporting Conventions

- MDL < value < RL → qualify as a J report as full value
- value < MDL < RL → qualify as a U report as the RL
- This is consistent with conventions of other programs

Reporting Conventions (cont)

- If value is above the RL, report the value
- Bioaccumulation -- use MDL for summing PCB congeners and PAHs

Metal contaminants of concern, methods, and RLs in sediments

Metal	Extraction and Analytical Methods	RL (ppm)
Arsenic	6010B, 6020, 7060, 7061	0.4
Cadmium	6010B, 6020, 7130, 7131	0.07
Chromium	6010B, 6020, 7190, 7191	0.5
Copper	6010B, 6020, 7210	0.5
Lead	6010B, 6020, 7420, 7421	0.5
Mercury	7471	0.02

Organic contaminants of concern, methods, and RLs in sediments

Chemical constituent	Extraction and Analytical methods	RL
TOC	Plumb 1981, EPA 1992 Puget Sound method	0.1%
Individual PAHs (16)	8270C-SIM	10 ppb
Individual Pesticides (16)	NOAA (1993), 8081B	1 ppb (toxaphene 50 ppb)
Individual	NOAA (1993), 8082A	1 ppb